

## WHAT IS CLAIMED IS:

1. A method of printing using a thermal printer, comprising the steps of:
  - a. applying an ink layer to a ribbon substrate, wherein said ink layer comprises a reactive dye which reacts with hydrogen, a binder material which is thermally meltable at an operating temperature of a thermal printer, and an alkaline material which promotes the reaction of said reactive dye with a printable substrate having an active hydrogen containing functional group available for reaction with said reactive dye;
  - b. supplying said thermal printer with said ribbon having said ink layer applied thereto;
  - c. thermally printing from said ink layer using said thermal printer and forming an image on said printable substrate by means of said ink layer, wherein said reactive dye reacts with said printable substrate; and
  - d. fixing said image by the application of heat.
2. A method of printing using a thermal printer as described in claim 1, wherein said ink layer further comprises a carrier which is not meltable at said operating temperature of said thermal printer, but which is meltable at a higher temperature than said operating temperature of said thermal printer, wherein, upon the application of sufficient heat to melt said carrier, said dye is transported by said carrier, and said dye and said carrier are absorbed by said printable substrate.
3. A method of printing using a thermal printer as described in claim 1, wherein said

carrier is urea.

4. A method of printing using a thermal printer, comprising the steps of:
  - a. applying an ink layer to a ribbon substrate, wherein said ink layer comprises a reactive dye, a binder material which is thermally meltable at an operating temperature of a thermal printer, and an alkaline material which promotes the reaction of said reactive dye with a printable substrate having an active hydrogen containing functional group available for reaction with said reactive dye;
  - b. supplying said thermal printer with said ribbon having said ink layer applied thereto;
  - c. thermally printing from said ink layer by said thermal printer and forming an image on an intermediate substrate by means of said ink layer;
  - d. subsequently transferring said image from said intermediate substrate and fixing said image to said printable substrate by the application of heat to said image.
5. A method of printing using a thermal printer as described in claim 1, wherein said ink layer further comprises a carrier which is not meltable at said operating temperature of said thermal printer, but which is meltable at a higher temperature than said operating temperature of said thermal printer, wherein, upon transferring the image as described in Claim 4, sufficient heat is applied to melt said carrier, and said dye is transported by said carrier, and said dye and said carrier are absorbed by said printable substrate.

6. A method of printing using a thermal printer as described in claim 5, wherein said carrier is urea.
7. A method of printing using a thermal printer as described in claim 4, further comprising a release layer which is applied to a portion of said ribbon substrate, wherein a portion of said release layer is transferred by means of said thermal printer onto said intermediate substrate prior to printing said image onto said intermediate substrate, and wherein said portion of said release layer which is transferred onto said intermediate substrate prevents a reaction between said intermediate substrate and said reactive dye and promotes the release of the image from the substrate when the image is transferred from the intermediate substrate to the printable substrate.
8. A method of printing using a thermal printer as described in claim 5, further comprising a release layer which is applied to a portion of said ribbon substrate, wherein a portion of said release layer is transferred by means of said thermal printer onto said intermediate substrate prior to printing said image onto said intermediate substrate, and wherein said portion of said release layer which is transferred onto said intermediate substrate prevents a reaction between said intermediate substrate and said reactive dye and promotes the release of the image from the substrate when the image is transferred from the intermediate substrate to the printable substrate.
9. A method of printing using a thermal printer as described in claim 6, further comprising a release layer which is applied to a portion of said ribbon substrate,

wherein a portion of said release layer is transferred by means of said thermal printer onto said intermediate substrate prior to printing said image onto said intermediate substrate, and wherein said portion of said release layer which is transferred onto said intermediate substrate prevents a reaction between said intermediate substrate and said reactive dye and promotes the release of the image from the substrate when the image is transferred from the intermediate substrate to the printable substrate.